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ABSTRACT

Project ALERT, a 3-year Wayne State University workplace education program in partnership with 5 varied worksites in metropolitan Detroit, developed replicable workplace literacy models. A review of literature provided information on how and why adults learn. A needs assessment and on-site observations were conducted to determine which sets of learning opportunities to include. The needs expressed by workers matched those indicated by managers. Both groups were especially interested in mathematics skills to pass the Differential Aptitude Test (DAT) for entry into the apprenticeship program for skilled trades. A modified whole language approach was used to develop the curriculum, including connections to prior knowledge, metacognition, teacher mentoring and coaching, and valuing the knowledge each participant brings while providing a risk-free environment. Pre-and post-class administration of the DAT demonstrated the effectiveness of the program, because the three workers who were chosen for the apprenticeship program had failed the first administration but passed after taking the class. The workers also reported satisfaction with the classes and a good rate of application of class-acquired knowledge to the job. (KC)

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Initial Considerations for Developing Workplace Curriculum (Based on Whole Language Concepts)

For adult instruction to be meaningful, it must meet the needs of the learners. To develop curriculum that is relevant to workers, it is necessary to determine these needs and develop purposeful learning opportunities that will meet these needs. It is also equally important to consider the needs and expectations of the company management and union and be able to incorporate these into the curriculum.

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Curriculum Defined

It may be helpful to understand what is meant by *curriculum*. One definition for curriculum is a *plan for providing sets of learning opportunities for students*. What is involved in developing a curriculum? First it is necessary to think about **WHAT** is to be accomplished? What sets of learning opportunities are needed? In other words, what is the **plan**? Likewise it is important to consider the **WHY,** the rationale of the curriculum and the philosophy of learning it proposes. Is it appropriate for this population? Then **HOW** is this plan going to be carried out? Finally, it is important to consider if what was planned **HAS** indeed been accomplished?

Project Background

Hopefully it will be easier to understand the process of curriculum development by looking at how it actually happened at one worksite. Project ALERT is a Wayne State University workplace education program in partnership with five varied worksites in metropolitan Detroit, Michigan. This 3 year project, funded by a Department of Education grant, has developed replicable workplace literacy models. The first site for which curriculum was developed was a small metal stamping plant for the automobile industry. The process for developing this curriculum for the workers at this site will be presented.

Whole Language Approach Selection and Modifications

First, for projects such as this, it is important to collect data, to look at what changes are taking place in the workplace that will impact workers, how adult workers learn best, what has already been done in other programs, what worked, what didn't and what ideas could be used for this site. Through a *review of the literature*, there emerged a clearer idea for the next step - developing the philosophy. - the **WHY** of the curriculum. We wrote our beliefs about how adult students learn best, what considerations needed to be taken in developing this workplace curriculum. Why might a particular approach work well with this population? In our case, we chose a whole language approach, which actively involves participants in the development of the concepts in a risk-free environment, which is important for adult learners. Connecting concepts to what workers already know helps provide a meaningful context for the learning. Encouraging active discussion among the students helps participants think and talk through difficult concepts.

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This philosophy provided a perspective to keep in focus as we developed our plan for the sets of learning opportunities.

A note about modifying the whole language curriculum for the workplace might be in order. In a *pure* whole language approach, students in the class would be actively involved in setting goals and selecting materials of interest as they pursued what they were interested in learning. Since we were working under certain constraints, such as pre and post tests, expectations from the company and governmental sponsor, we had to modify our approach by emphasizing only some key whole language elements. Included in our curriculum were connections to prior knowledge, metacognition - thinking aloud how concepts are perceived and understood, teacher mentoring and coaching, and valuing the knowledge each participant brings while providing a risk-free environment. Even though our class could not be considered whole language in its academic form, students responded favorably. When an SPS (statistical process control) class was considered, prospective students asked that it be conducted in the same way as their former Apprentice Prep class.

Curriculum Content Selection

How can one know **which** sets of learning opportunities to include? How does one determine the needs of the workers, for whom curriculum is developed. This leads to our next step - the needs assessment which involved interviewing workers and supervisors to determine needs from their perspective. What did they think was needed? This is a key piece for determining the area of learning would be targeted. Before we discuss the needs assessment, let us back up to the initial contact with this company.

During this initial phase, the university staff who originally wrote the grant, first contacted this company, before we, the development team, actually came on the scene. One thing we learned early on is that it is important to have a point contact person, a single individual, who can be addressed for questions, can be called on to set up meetings and provide needed materials. We arranged a meeting with our stakeholders. It is so important to have both management and labor represented. We were fortunate to have the director of Human Resources and the union plant chairman on board throughout our involvement. (We have since realized the importance of also involving representatives of upper management.) At this meeting, we discussed the perceived needs of the stakeholder. We asked for a tour so we could get a feel for the site. We requested and received site specific materials, such as standard operating procedures, job descriptions, manuals, worksheets, labor agreements, copies of tests that workers take, SPC and problem solving training booklets - basically anything that workers use on the job or would need to read. We discussed the idea of conducting a needs assessment, which would involve interviewing workers and supervisors. We also asked permission to do an on-site observation. Later, we were able to agree on times and places, and when workers and supervisors would be interviewed.

Needs Assessment Process and Results

We then worked on developing a needs assessment instrument for collecting the desired information. We drafted, revised , and refined until it suited the perceived needs of our project staff. We then had to get the approval from management and labor union at the site as well as from the Human Subjects committee at the university. If one is working with a university, it is critical to find out if it is necessary to get approval from the university Human Subjects committee, because failure to do so, in our case, delayed our interviews for almost a month.

Finally we were ready at the plant to conduct the actual interviews. We met in the Human Resources conference room. The union chairman and Human Resources director had determined which workers and supervisors we would interview. The ones selected represented a good cross section at this plant. We found that it was helpful for one person to ask questions and another to script what was said. This allowed undivided attention to the person being interviewed. (We found that it was so very important to create a favorable impression on these interviewees. About 80% of those interviewed later became participants in our classes. In fact, our very first interviewee became the chief recruiter for our program.) We allowed 45- 60 minutes for each interview. We were able to collect information about the worker's job - what was involved, what basic skills and materials/tools were used on the job, what training had been given already, what training/support could help make their job easier, what changes were taking place that would impact the worker, as well as more informal questions, such as "What is the most difficult part of your job?" and "What would you change if you could?" "What would you like to learn?" We felt that we received more useful information from the informal conversations than from the set questions needed for our standard data base.

After the pilot and regular interviews, we conducted the on-site observation, for which we observed what workers were doing, their interactions with other workers and supervisors, what items they needed to read, record, compute, as well as evidence of environmental support, those things that the company did to support workers in their jobs.

After collecting and analyzing our data, we met again with the stakeholders to discuss our results and together determine the direction that should be taken for developing the curriculum for their *Skills Enhancement Center*, the name for the program and classroom. Once we found out the specific needs from the needs assessment interviews, a review of site materials, and on-site observation, we listed these specific items on sticky notes and arranged them on charts / story boards according to categories that fit together. If we had an item that involved written communication, this might be included on the communication chart or on the writing chart. We could move these items around as needed. These charts helped us to think about what was needed . We referred to these as we developed the objectives, lessons, outcomes and the evaluation measures.

Curriculum Development

As it turned out, we were pleasantly surprised that the needs expressed by workers matched those indicated by management. Workers wanted to be able to get into the apprenticeship program for skilled trades but had to pass the DAT- Differential Aptitude Test. Management, too, was interested in such a program because skilled trades workers were retiring and as they left, there would be a need for apprentices. **Now** we knew what was needed, so we concentrated our efforts on determining exactly what workers would have to know in order to pass this test. Once we knew what the targeted areas would be, we looked at the specific material that needed to be learned, such as verbal reasoning, abstract reasoning, space relations, numerical reasoning, mechanical reasoning and began developing our specific objectives. We also included test taking strategies, since workers indicated test taking reluctance. We then thought of how we would develop meaningful learning opportunities as well as the outcomes and the application for the workplace.

The three of us on the curriculum development team found it was helpful to work collaboratively. One had actual experience with workplace education in a large industrial plant. One had a background in curriculum and adult education, and the other had a background in literacy. As we discussed ideas for lesson objectives and learning activities, all three had different perspectives and were able to provide valuable input.

Assessment Considerations

Let us look, for a minute, at the *How we know it has been accomplished*? One expectation of a federal grant is that pre and post tests be given. This included both standardized and customized tests. Of course the standardized tests are easy because they are all ready to give, once the decision is made which one to use. However these don't necessarily address the specific kinds of learning that have been developed in the curriculum, to evaluate specifically if students learned what was intended. It is important that a customized test be developed at the beginning, before any classes be given so students can take the test, without comment or results given, and then take the same test at the end to determine what has been gained, whether students have learned, or at least made progress toward, what was expected.

Perhaps of equal importance is the on-going assessment that takes place throughout the course. How can one know that students are benefiting from the program? Listening to comments of students, reading reflections in their journals and reviewing their portfolios can give some indication of their interests and learning, as well as what they didn't quite understand yet. Hearing students express their satisfaction or dissatisfaction with what they are learning also can also be helpful. At the end of each class session, students and the instructor can "level" with each other as to whether the needed learning for that particular lesson has taken place. Do students understand what was presented? Can they think how they might be able to use one thing from the lesson on their job in the next week? It is vital to have partnership in evaluation, with both instructor and students involved.

Another important aspect of assessment is that of direct application to the job. Is what the student learning making any difference on his job? One student remarked that the exercises that he did in class helped him to be able to figure out things on the job and in other areas. In the case of the Differential Aptitude Test preparation, it was important to see how well these students performed when they took the actual test. It is interesting to note that the three workers who were chosen for the apprenticeship program were participants of the DAT Prep class. They had taken the test before and failed to pass it, but after the class, all three had passed. One participant who was selected, remarked, "I don't know what I would have done if this class were not offered." Later, in the plant, a worker asked if another class were to be offered since he had heard that the ones picked were from the class.

It is hoped that this has provided a better understanding of some of what is involved and where to start in developing a curriculum for a particular worksite. The needs assessment functions as a key part in determining what workers, supervisors, and management perceive as needed. It is also important to keep in mind, up front, how the effectiveness of the curriculum will be determined even before designing of lessons begin. Thoughts about how the learning opportunities will be applied directly to the job also need to be addressed. Hopefully these considerations will be helpful in getting started in developing a purposeful program that benefits both workers and employer.